



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,904	09/20/2005	Takayuki Kato	Q90376	7150

65565 7590 09/06/2007
SUGHRUE-265550
2100 PENNSYLVANIA AVE. NW
WASHINGTON, DC 20037-3213

EXAMINER

ROBINSON, ELIZABETH A

ART UNIT	PAPER NUMBER
----------	--------------

1773

MAIL DATE	DELIVERY MODE
-----------	---------------

09/06/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/549,904	Applicant(s) KATO ET AL.	
	Examiner Elizabeth Robinson	Art Unit 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☒ Claim(s) 5-7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>09-20-2005</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claims 5-7 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 5-7 have not been further treated on the merits.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Lines 3 through 10 of claim 4 describe the hollow ceramics particles. Lines 7-10 describe the ceramics powder covered by a resin powder. However as shown in Figure 2, the ceramics powder covers the resin powder. The Examiner is interpreting the claim to mean that the hollow ceramics particles of the instant application (particles formed by sintering a precursor comprising resin powder covered by a ceramics powder) are dispersed in a matrix.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 1773

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kato et al. (JP2003-160330). A machine translation of this document is provided with this office action. A formal English translation of this document will be provided with the next office action.

Regarding claims 1 and 2, Kato (Paragraphs 27-28, Example 2) teaches an almost identical process for making a hollow ceramic particle as is used in the Example of the instant application. The only difference between the method of Example 2 and the Example of the instant application is the rotation speed of the chamber. In Example 1, Kato (Paragraph 21) teaches the identical rotation speed for the chamber as in the instant application. The hollow particles are preferably 20 microns or less in diameter (Paragraph 6). The materials of Example 2 are identical to the materials of the Example of the instant application. Kato does not explicitly teach the breaking strength or shell thickness of the particles. However, since the materials and machinery of Kato are identical to the instant application, the particles should inherently meet the limitations of the instant claim. Alternately, if the rotation speed has an effect on the particle

properties, it would be obvious to one of ordinary skill in the art to vary the rotational speed to another speed that is taught in Example 1 to obtain desired properties.

Regarding claim 3, Kato (Paragraph 21, Example 1) teaches two different sizes of alumina powders. Kato (Paragraph 27, Example 2) further teaches silica and alumina particle used together.

Claim Rejections - 35 USC § 103

Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi (US 2002/0006986), in view of Kato.

Igarashi (Paragraph 2) teaches an epoxy resin composition for encapsulating a semiconductor. Igarashi (Paragraph 19) further teaches that hollow inorganic filler is added to further reduce the dielectric constant of the epoxy resin (matrix). The hollow inorganic particles can be hollow spheres comprising a silicon oxide (silica) and an aluminum oxide (alumina) (Paragraph 20). The hollow spheres need to have a strong shell strength to withstand the heating and kneading-dispersion process that the resin and particles are subjected to. The particles should have a particle size of 110 microns or less, a shell thickness of 2 to 4 microns, and a high compression strength (Paragraph 47). As stated above, Kato teaches particles that meet these limitations and have a strong, homogenous shell layer (Paragraph 6). It would be obvious to one of ordinary skill in the art to use the particles of Kato, as the hollow particles of Igarashi, as they are of the correct size and strength to withstand the processing of the resin/particle composition.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Robinson whose telephone number is 571-272-7129. The examiner can normally be reached on Monday- Friday 8 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ear



CAROL CHANEY
SUPERVISORY PATENT EXAMINER